

Testimony of
Robert T. Francis, Vice Chairman
National Transportation Safety Board
before the
Committee on Commerce, Science, and Transportation
Subcommittee on Surface Transportation and Merchant Marine
United States Senate
Regarding
Railroad Safety

February 25, 1998

Good afternoon Chairwoman Hutchison and Members of the Committee. I appreciate the opportunity to represent the National Transportation Safety Board regarding the important issue of railroad safety.

Before beginning, I would like to introduce the staff member with me today, Mr. Robert Lauby, Director of the Board's Office of Railroad Safety.

Madam Chairwoman, railroads are one of the nation's safest forms of transportation, but the potential for tragedy exists in railroad transportation as it does in every mode of transportation. Millions of passengers are carried each year on Amtrak and rapid rail systems, and over 1.52 million carloads of hazardous materials move by rail each year. Projected growth rates show that there will be 600 million train miles in the year 2002, a 11 percent increase from 1997.

There are and will continue to be accidents in railroads as in all modes of transportation. The Safety Board is currently investigating six major railroad accidents. A brief summary of each follows.

Union Pacific Railroad, Devine, Texas -- June 23, 1997

On June 23, 1997, a northbound and a southbound Union Pacific (UP) freight train collided and derailed Devine, Texas, located about 40 miles southwest of San Antonio. The collision occurred on a single main track between Laredo and San Antonio. There are no wayside signals on this segment of track, and authorization orders for train movements are issued by radio

to each train by a dispatcher. The accident resulted in four fatalities and one injury.

Issues being examined as a result of this accident include: the effectiveness of train dispatching in non-signalized territory; management oversight in train dispatching in non-signalized territory; positive train control; and crashworthiness of locomotive event recorders.

Union Pacific Railroad, Delia, Kansas -- July 2, 1997

On July 2, 1997, near Delia, Kansas, a westbound UP freight train struck the side of an eastbound UP freight train. The collision occurred where the main line and the siding merge. The engineer on the westbound train was killed, and the conductor sustained minor injuries. The westbound train failed to stop at the stop signal and entered the route of the eastbound train. Fifteen cars from the eastbound train and two locomotives and three cars from the westbound train were derailed. Following the collision a fire caused by the punctured locomotive fuel tanks on the eastbound train engulfed the derailed cars and locomotives. Five of the derailed cars contained hazardous materials and 1,500 people were evacuated. Damages caused by this accident exceeded \$5 million.

Issues being examined as a result of this accident include: the effect of fatigue on the engineer on the westbound train; and positive train separation.

Amtrak - Burlington Northern Santa Fe, Kingman, Arizona -- August 9, 1997

On August 9, 1997, an Amtrak train derailed about five miles east of Kingman, Arizona. Amtrak train 4 was en route from Los Angeles, California, to Chicago, Illinois, operating at about 89 miles per hour on the eastbound track when both the engineer and assistant engineer saw a dip in the track as they approached the bridge. They applied the train's emergency braking and derailed as the train traversed the bridge. The bridge's foundation support was undermined from severe erosion during a flash flood.

Issues being examined as a result of this accident include: adequacy of track inspection; safety of track and structures subject to damage in severe storms; and passenger safety and emergency procedures.

Amtrak - CSX Transportation, Garden City, Georgia -- October 9, 1997

On October 9, 1997, an Amtrak train en route from New York City to Miami, Florida, struck a tractor trailer at a passive grade crossing near Garden City, Georgia. The trailer, a low profile semitrailer combination, was lodged on a high-vertical profile crossing. The crossing was on a CSXT track. The CSXT Control Center in Jacksonville, Florida had been advised of the hung-up truck 15 to 20 minutes before the collision, but assumed that the hung-up truck was on another track. The accident resulted in two locomotive units and all 11 passenger cars derailed. Although there were injuries as a result of the accident, there were no fatalities.

Issues being examined as a result of this accident include CSXT's emergency notification procedures, and marking of highway/rail grade crossings and the ability of the dispatcher to locate those crossings.

Union Pacific Railroad , Houston, Texas -- October 25, 1997

On October 25, 1997, at Houston, Texas, a westbound UP intermodal train collided head on with a UP eastbound manifest train. Both trains were manned by an engineer and conductor. The derailed locomotives came to rest near the Mustang Propane Transmission Line, and as a precautionary measure local police blocked traffic one-half mile on either side of the derailment.

Issues being examined as a result of this accident include: mechanical inspections of equipment and locomotives; UP training and qualifying procedures; and UP locomotive engineer certification program.

Union Pacific Railroad, Navasota, Texas -- October 29, 1997

On October 29, 1997, near Navasota, Texas, a UP train struck the rear car of a stopped UP train near Navasota, Texas. The collision resulted in the derailment of the rear car of the stopped train, two locomotive units and 10 cars of the striking train. A fire erupted caused by ignited diesel fuel.

During interviews conducted by Safety Board investigators the conductor of the striking train told the investigators that both crewmen discussed how tired they were after going on duty. The engineer admitted to drinking a few beers prior to going on duty, and had not been observed by a supervisor at the time of going on duty.

Issues being examined as a result of this accident include: management oversight of on-duty personnel; crew fatigue; drug and alcohol testing; and regulatory agencies oversight.

As you will note from the above, although the circumstances of the accidents mentioned are quite different, the safety issues are familiar. The Board has been addressing a number of these safety concerns for many, many years. I would briefly like to discuss the issue of management responsibility and oversight – corporate culture – and two other safety issues that have been and remain of concern to the Board. They are positive train separation and human fatigue, both on the Board’s “Most Wanted” list.

Corporate Culture

Last year, the National Transportation Safety Board sponsored a symposium aimed at achieving a better understanding of how organizations influence the daily operations and safety of the transportation system. Essentially, corporate managers and structure, as well as government policies and actions, serve as role models and directly influence the day-to-day attitudes toward safety. Our Keynote speaker, Dr. James Reason, concluded his presentation by stating that “effective risk management requires the application of different counter-measures targeted at different levels of the system at the same time – and all the time.” We firmly believe that Dr. Reason’s advice needs to be reinforced at all levels of the railroad industry, including the federal level.

In the broad context of corporate safety management, good management is characterized by an emphasis on safety that begins at the highest level and permeates the entire operation. That is to say that there is an active program in place to look at accidents and incidents, alter policies and procedures to best guard against recurrence, and having a system in place to disseminate safety information to operational personnel quickly.

Positive Train Separation

As you are aware, positive train separation (PTS) is a system that backs up the action of the human operator to prevent collisions or overspeed derailments, and the need for PTS has been highlighted over and over in our railroad investigations since 1969. Having placed this item on our “Most Wanted” list of transportation safety issues, the Safety Board has long been an advocate of advanced control systems that will provide PTS and act as a safety net for human performance failures in the operation of trains. These advanced electronic systems can reduce both the number and severity of train accidents caused by the failure to take action to prevent a train collision.

The Safety Board for many years was discouraged with the pace at which the railroad industry was developing a train control system that could provide PTS. However, we are pleased that there have been some important developments including:

- A positive train separation test project involving the Burlington Northern and Union Pacific Railroads in the Pacific Northwest. This project is on-going and has the full support of the FRA.

- The FRA has been actively promoting development and deployment of PTS and systems that incorporate PTS and other safety and capacity-enhancing features.
- The FRA provided high-speed positive train control grants for railroad corridors in Michigan and Illinois, and also provided a grant to support the development of a PTS test bed that will run from Manassas, Virginia, to Harrisburg, Pennsylvania.
- Amtrak, with the support of the FRA, has been working on advanced train control for a number of years on the New Haven to Boston segment of the Northeast Corridor.
- FRA published a proposed order of particular applicability that would require all train operations on the Northeast Corridor between Boston, Massachusetts and New York, New York to be controlled by locomotives equipped to respond to a new advanced civil speed enforcement system in addition to the automatic train control system that is currently required.

Madam Chairwoman, we were also pleased with the recent announcement that the FRA will sponsor, along with the Association of American Railroads and the State of Illinois, a test of a global positioning system to help track freight and passenger trains over a 123-mile stretch of railroad in Illinois. The system, similar to that in the Pacific Northwest, uses satellites, radio signals and computers to monitor the location and speed of trains and is designed to automatically stop trains before a collision occurs.

Human Fatigue

Unpredictable work and rest cycles in the railroad industry can adversely affect train crews' performance of their duties, and, ultimately, the safety of rail operations. As mentioned earlier, this subject is being examined as an issue in the accident that occurred in July 1997 at Delia, Kansas.

Fatigue is an issue that has been of great concern to the Safety Board for many years. While it remains one of the more perplexing problems to substantiate in accident investigations, the body of scientific evidence collected over the past decade clearly reflects the critical need for adequate rest for those people operating the transportation system. We do not believe that anyone can honestly dispute that statement today. However, it also appears to be one of the most challenging problems to fix.

The Department of Transportation has spent an enormous amount of federal dollars researching this human condition and has embarked upon rulemaking effort to remedy it. However, because the solution requires a fundamental change in habits and culture -- neither is easy to change. We as a government need to decide to what extent the status quo is acceptable. If we can agree that fatigue-caused accidents are unacceptable, then we must move to change the status quo.

Until the appropriate regulatory changes are made, we strongly advocate educational programs, similar to those developed at the NASA Ames Fatigue Countermeasures Program. The Safety Board held a symposium highlighting this program several years ago and we are happy to report

that the FRA and Federal Transit Administration held a similar program just last week.

The Brotherhood of Locomotive Engineers and the Association of American Railroads, along with a number of individual railroads, have been evaluating work/rest problems of train crews, and the AAR has also urged its members to provide educational information on fatigue to their employees.

Although we applaud these initiatives, we believe it is time that the FRA and the industry reassess the appropriateness of the House of Service Act – a law that is 90 years old. The Act does not accommodate increased commuting distances crews encounter, or the need to properly eat, rest, or attend to personal matters, or address the advances in our scientific understanding of human work/rest scheduling requirements following these many decades of human factors research.

Union Pacific Railroad

Madam Chairwoman, I would now like to talk about the safety process that we use in this country to ensure that our nation's railroads are operated safely. Since a number of the Board's ongoing major railroad investigations involve the Union Pacific Railroad, that is where I will begin.

The Union Pacific Railroad, the largest railroad in the United States with about 36,000 miles of track, had a series of accidents that were of particular concern to the Safety Board, the Federal Railroad Administration, and the Railroad industry. The Safety Board investigated over 14 UP accidents in a one-year period. Of these 14 accidents, 7 were collisions that resulted in 7 fatalities.

The Burlington Northern Santa Fe (BNSF) is almost as large as the Union Pacific Railroad with about 35,000 miles of track. During the same 1 year period, the Safety Board launched on five significant accidents on the BNSF, and only one accident involved a collision.

The number of significant events on the Union Pacific Railroad was unprecedented and indicated that there was a serious problem.

The Federal Railroad Administration sent audit teams to the Union Pacific -- first in June 1997 after the Devine, Texas, accident, and then again in October 1997 following the Navasota Texas, accident. Over 100 inspectors were involved in the first audit, and over 80 inspectors in the second. Federal Railroad Administrator Jolene Molitoris, in a September 10, 1997 press release, stated that there existed "... a fundamental breakdown in the railroad's ability to effectively implement basic railroad operating procedures and practices essential to safe railroad operations." The Safety Board has found indications of this problem in its accident investigations.

How could this happen? How could these fundamental problems occur? This is something that the Safety Board intends to look at in a special investigation into safety problems at the Union Pacific Railroad. As part of that special investigation, the Board will hold a three-day public hearing in March that will address in part the effectiveness of safety oversight on the UP, including the role of Federal and state agencies.

In the meantime, however, there is a need for the railroad industry to change its safety culture

and work toward preventing accidents rather than reacting to accidents. This change needs to involve all elements of the industry – including railroad labor, railroad management, and the federal regulators. All parts of the railroad industry need to dedicate themselves to preventing accidents.

The Federal Railroad Administration has several elements of their railroad safety plan designed to build consensus on rulemaking and to handle safety issues that result from accidents. These partnerships with industry should be an important part of the Federal Railroad Administration's safety program. Safety partnership programs, however, cannot be the only element of a comprehensive railroad safety program. Inspection and auditing -- before an accident takes place -- is equally important. Inspections and audits become the early warning system so that federal authorities can react before there is a crisis as is the case with the Union Pacific Railroad.

The Board recognizes that accidents are not usually caused by one solitary factor, nor do they occur in a vacuum. Safety and accident prevention is everyone's concern and responsibility:

- Government is responsible for setting guidelines and standards;
- Management is responsible for enhancing the compliance with those standards, while accommodating variations in individual experience, knowledge, and skills; and
- The operator is responsible for using the knowledge, skill and experience to do the job in the safest way.

It would be unfair to say that the railroad industry is unsafe or that improvements in safety are not taking place. The FRA recently announced that 1997 may be the safest year in railroad history. The trend is for a safer industry. But to those of us at the Board, railroad safety initiatives seem to move at an unfortunately slow pace. A telling example of this characteristic is the closing page of the

Safety Board's 1996 testimony before this Committee.

“The Safety Board encourages the Federal Railroad Administration and the Federal Transit Administration to take all necessary actions, not just through emergency orders, but through rulemaking as well. Completion of rulemaking processes on Two-way End of Train Devices, Power Brake Regulations, Passenger Car Safety Standards, Track Safety Standards, and other activities are vital to the safety of railroad employees, passengers, and the public. The NTSB encourages the FRA to complete these activities as quickly as possible. The FRA should consider the safety ramifications of further delay and establish a plan to complete these rulemakings to save Americans from death or injury in future railroad accidents. “

Over two years later, of the four rulemakings mentioned, only the two-way end of train device rule is complete and in place.

The Safety Board believes that the Federal government and the industry can do better. The safety culture and the approach to safety needs to be changed so that accidents can be prevented before they happen. If a safe environment for passengers or those who live alongside the right of way cannot be guaranteed, then new railroad technology such as the high speed trains on the Northeast Corridor or elsewhere cannot ultimately be successful.

Madam Chairwoman, that completes my testimony, and I will be happy to respond to any questions you may have.